Mini Pro 300V Power Supply

Instruction manual

Catalog No. Mini-300

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service@majorsci.com

Version 01C
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Packing list

Mini-300

- 1x Mini Pro 300V Power Supply
- 1x Power Cord
- 1x Instruction Manual

Signed by:

Date:

Major Science is liable for all missing or damaged parts / accessories within 7 days after customer received this instrument package. Please contact Major Science immediately regarding this issue. If no response within such time period from consignee party, that will be consignee party's whole responsibility.

Warning

Major Science Mini Pro 300V Power Supply has been tested and found to comply with the limits for the CE regulation. Also, it is RoHS compliant to deliver confident product which meets the environmental directive. These limits are designed to provide reasonable protection against harmful interference when the instrument series is operated in a commercial environment. This instrument series used together with power supply unit generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this instrument series in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. It is strongly recommended for the user to read the following points carefully before operating this equipment.

1. Read and follow the manual instructions carefully.
2. Do not alter the equipment. Failure to follow these directions could result in personal and/or laboratory hazards, as well as invalidate equipment warranty.
3. Use a properly grounded electrical outlet with correct voltage and current handling capacity.
4. Disconnect from power supply before maintenance and servicing. Refer servicing to qualified personnel.
5. Never use this instrument series without having the safety cover correctly in position.
6. Do not use the unit if there is any sign of damage to the external tank or cover. Replace damaged parts.
7. Do not use in the presence of flammable or combustible material; fire or explosion may result. This device contains components which may ignite such materials.
8. Refer maintenance and servicing to qualified personnel.
9. Ensure that the system is connected to electrical service according to local and national electrical codes. Failure to make a proper connection may create fire or shock hazard.
10. Use appropriate materials and operate correctly to avoid possible hazards

of explosion, implosion or release of toxic or flammable gases arising from overheated materials.

11. The unit shall be operated only by qualified personnel.

Safety Information

Use high level of precaution against any electrical device. Before connecting the electrical supply, check to see if the supply voltage is within the range stated at the rating label, and see to it that the device be seated firmly. Place the unit in a safe and dry location; it must NOT touch the surrounding. Follow the safety precautions for chemicals / dangerous materials. If needed, please contact qualified service representative or service@majorsci.com

Environmental Conditions

Ensure the instrument is installed and operated strictly under the following conditions:

1. Indoor use only
2. ≤95% RH
3. 75 kPa – 106 kPa
4. Altitude must not exceed 2000 meters
5. Ambient to 40°C operating temperature
6. Pollution degree: 2
7. Mains supply voltage fluctuations up to ±10% of the normal voltage

Avoiding Electrical Shock

Follow the guidelines below to ensure safe operation of the unit.

The Mini Pro 300V Power Supply has been designed to utilize shielded wires thus minimizing any potential shock hazard to the user. Major Science recommends against the use of unshielded wires.

To avoid electrical shock:

1. In the event of solution spilling on the instrument, it must be dried out for at least 2 hours and restored to NORMAL CONDITION before each operation.
2. Never connect or disconnect wires loading from the power jacks when the red indicator light of power switch is on.
3. WAIT at least 5 seconds after stopping a run before handling output leads or any connected apparatus.
4. ALWAYS make sure that your hands, work area, and instruments are **clean** and **dry** before making any connections or operating the power supply.
5. ONLY connect the power cord to a properly grounded AC outlet.

Avoiding Damage to the Instrument

1. Do not attempt to operate the device if damage is suspected.
2. Protect this unit from physical damage, corrosive agents and extreme temperatures (direct sunlight, etc.).
3. For proper ventilation and safety concerns, keep at least 10 cm of space behind the instrument, and at least 5 cm of space on each side.
4. Use high level of precaution against the damages on the unit.
5. Do not operate the unit out of environmental conditions addressed above.
6. Prior to applying any cleaning or decontamination methods other than manufacturer's recommendation, users should check with the manufacturer's instruction to see if the proposed method will damage the equipment.

Equipment Operation

Follow the guidelines below to ensure safe operation of the unit:

1. NEVER access dangerous chemicals or other materials to prevent possible hazard of explosion and damage.
2. Do not operate the unit without lids or covers to prevent possible hazards.
3. A temporary conductivity caused by condensation might occur even though this series is rated Pollution Degree 2 in accordance with IEC 664.

Symbol

Symbols used on the power supply is explained below.

Indicates an area where a potential shock hazard may exist. Consult the manual to avoid possible personal injury or instrument damage.

Indicates disposal instruction.

DO NOT throw this unit into a municipal trash bin when this unit has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit.

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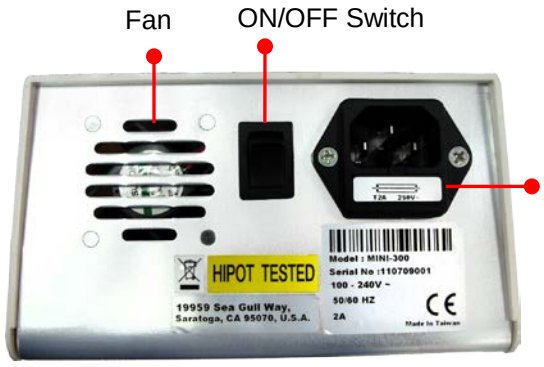
Section 1 Introduction

1.1 Overview

Major Science Mini Pro 300V Power Supplies are recognized as unique power supplies equipped with very powerful specifications to cover the majority of electrophoresis applications on the market. Sufficient and accurate output voltages, two terminal pairs, and its compacted size can deliver accurate and reliable experimental results from one experiment to another. Mini Pro 300V Power Supplies are RoHS and CE compliant for environmental and safety concerns. Package offering is another feature for users' convenience and budget concern.

Front view



Rear view

1.2 Product Description & Feature

Combining small size and versatility, the newly redesigned Mini Pro 300V power supply is an ideal choice for any researcher. Capable of providing constant current or constant voltage in 1 mA or 1 V steps, the unit is perfectly suited to run both vertical polyacrylamide and horizontal agarose electrophoresis experiments. Continuous or timed operations are easily performed using the simple and user-friendly interface. The mini 300V features 2 electrode pairs, allowing for 2 gels to be run simultaneously, saving both time and valuable bench space. With a universal voltage rating, the mini 300V is also designed and constructed to the most rigorous safety standards. Packages including single or dual horizontal electrophoresis systems are excellent choices for educational or personal use.

- Compact size
- Power capacity: 60W, 400mA, 300V
- Constant Voltage or Constant Current operation
- 1 V step voltage selection; 1 mA step current selection
- Timer
- No load detection
- Shrouded plugs and sockets
- Two pairs of outlet terminals
- Output voltage stability
-Economic choice for larger horizontal electrophoresis & 10 x 10 cm vertical electrophoresis
- Bundled package with ME15-15 and MV-10
- New housing and exterior design

Section 2 Technical Specification

Cat. No	***Mini-300***
Output Voltage / Inc.	10 - 300V / 1V
Output Current / Inc.	10 - 400mA / 1mA
Max. Watt	60W
Output Type	Constant Voltage or Constant Current
Control	Microprocessor controller
Terminal Pairs	2 Pairs
Timer	1 - 999 minutes with alarm, continuous
Safety Device	No load detection; shrouded plugs and sockets
Operation Temperature	Ambient to 40 ℃
Unit Dimension	140 x 191 x 84mm
Construction material	Polycarbonate housing and aluminum bottom plates
Weight	Approx. 1 kg
Rated Voltage	100 - 240 V

Section 3 Installation Instructions

Mini Pro 300V Power Supply is actually a pre-installed instrument. As long as it is placed on a sturdy and level surface in a safe, dry place, and further connects with well-prepared electrophoresis system, it is ready for operation.

Section 4 Operation Instructions

4.1 Control interface

You will be able to find six buttons and 4 LED indicators from the faceplate. The LED indicates the status of the unit.

a. Setup Mode (before pressing RUN/Start)

LED light indicates your current parameter. If you are setting a value for Voltage, the Voltage LED will be lit.

b. Operation Mode

After you start the experiment, the LED light next to the RUN/STOP button will light up to indicate unit under operation.

1.

– Select voltage value
2.

– Select current value
3.

– Timer button
4.
– Increase the Voltage, Current or Time
5.
– Decrease the Voltage, Current, or Time
6.

– Start or stop the unit

4.2 Start the operation

Note: To operate under constant voltage or constant current modes, adjust the other parameter to the maximum value. For example, to operate under constant voltage, adjust current to max before running using constant voltage, and vice versa.

1. Place the unit on a sturdy and level surface in a safe, dry place, away from laboratory traffic.

2. Ensure that the AC power switch is OFF, and then plug the three-pronged power cord into a grounded three-prong AC outlet with appropriate voltage (100V to 240V as indicated on the rating sticker near the AC cord on the back of the unit).

3. Power on the unit by pressing the ON/OFF switch.

4. Connect the DC output jacks from the electrophoresis unit; insert the red lead (+) into the red output jack, and the black lead (-) into the black output jack.

5. **Constant voltage or current**

*To set constant voltage, press

, the LED indicator should light up.

*To set constant current, press

, and LED indicator should light up.

6. Adjust the output value by pressing the or button.

7. After adjusting your constant mode output value, switch to the other parameter and set it to maximum.

8. Timer Setting: After setting the current or voltage output value, press the Timer button, and then press key or key to adjust timer accordingly.

   Note: When timer is set as “0”, it means continuous operation.

9. Press

Key to start the run. Once the electrophoresis starts, the LED light next to the

button will light up.

10. Press

Key again to stop the unit at any time if necessary.

11. When the run is completed, Press

Key to terminate a timed run, and Turn the AC power OFF by the switch on the rear.

12. The programmed settings will be automatically saved into the system so the next time you turn it on, the same settings as your previous experiment will be displayed.

Section 5 Trouble shooting and Maintenance

Many operating problems may be solved by carefully reading and following the instructions in this manual accordingly. Some suggestions for troubleshooting are given below. Should these suggestions not resolve the problem, contact our SERVICE DEPARTMENT or a distributor in your region for assistance. If troubleshooting service is required, please include a full description of the problem.

Problem	Cause	Solution
No Display / lights	No AC power	Check if the power supply is unplugged, or AC power source problem
	AC power cord is not connected	Check AC power cord connections at both ends. Use the correct cords.
	The fuse has blown	Replace the fuse
Repeated fuse broken	Hardware failure	Contact Major Science service department
Operation stops	Electrophoresis leads are not connected to the power supply or to the electrophoresis unit(s), or there is a broken circuit in the electrophoresis cell	Check the connections to the power supply and on your electrophoresis cell to make sure the connection is intact; check condition of wires in electrophoresis unit. Close the circuit by reconnecting the cables. Press **START/STOP** to restart the run.
	High resistance due to tape left on a pre-cast gel, incorrect buffer concentration, or incorrect buffer volumes in the electrophoresis cell	Correct the condition by making sure the tape is removed from the pre-cast gel, buffers are prepared correctly, and the recommended volume of buffer is added to the electrophoresis unit.
Error message	Over current(400mA limitation reached)	Check if the buffer concentration is appropriate. Excessive buffer concentration may cause over current issue. To clear the error message, press the **START/STOP** button again

Error message	Over voltage(300V limitation reached)	Press **START/STOP** button to clear the error message. Contact MS service dept. if the problem persists.
Error message	Thermal limitation reached(Output voltage <10V)	(1) Check the connections (2) If **Er3** error message persists, the problem may be caused by internal fan failure. Contact MS service department.
Message	No load is detected	(1) Check the connections (2) Check the buffer condition / buffer level
Alarm message	Max. watts(60W) of power reached	Warning message for reference

Encountering Problems

1. Check the troubleshooting section.
2. Call Technical Service or e-mail to service@majorsci.com
3. If the unit must be shipped back for repair, contact Major Science or the distributor for a Return Authorization Number and shipping instructions. The unit will be repaired and returned to you as quickly as possible.

Replacing the Fuse

For additional fuses, contact Major Science co. ltd.
To replace the fuse:

1. Turn off the main power switch at the rear of Power Supply and detach the power cord.

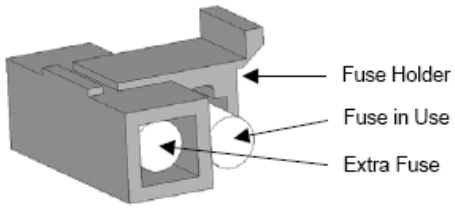
2. Open the fuse compartment located inside the Power Entry Module by inserting a small flat blade screwdriver into the slot below the ON/OFF switch. Turn the screwdriver to gently pry open the fuse compartment.

Note: The fuse compartment will not open with the power cord in place.

3. Pull the fuse holder out of the compartment and inspect the fuse. If the fuse is burned or there is a break in the fuse element, replace the fuse with an

identical type of fuse (**T2AH250V**) as provided in the fuse holder (see figure below).

4. Place the fuse holder back into the compartment.
5. Snap the cover closed.



Maintenance

Mini Pro 300V Power Supply uses all solid-state components and should require no maintenance or recalibration under normal use. If the unit must be returned for repair, contact our **SERVICE DEPARTMENT** or your local distributor for shipping instruction.

Section 6 Ordering Information

Cat. No.	Description
Mini-300	Mini Pro 300V Power Supply

Single Electrophoresis Package

MJS-Mini300	Package of MJ-105-S and Mini-300
MJR-Mini300	Package of MJ-105-R and Mini-300
MT-Mini300	Package of MT-108 and Mini-300

Dual Electrophoresis Package

MJSS-Mini300	Package of 2 x MJ-105-S and Mini300
MJRR-Mini300	Package of 2 x MJ-105-R and Mini300
MTT-Mini300	Package of 2 x MT-108 and Mini300
MJSR- Mini300	Package of MJ-105-S & MJ-105-R and Mini300
MJST- Mini300	Package of MJ-105-S & MT-108 and Mini300
MJRT- Mini300	Package of MJ-105-R & MT-108 and Mini300

ME10-Mini300	Package of ME10 and Mini300
ME15- Mini300	Package of ME15-15 and Mini300
MV10- Mini300	Package of MV-10 and Mini300

ME10-Mini300

ME15-Mini300

MV10-Mini300

Section 7 Warranty

Major Science warrants apparatus of its manufacture against defects in materials and workmanship, under normal service, for ***one year from the shipping date to purchaser***. This warranty excludes damages resulting from shipping, misuse, carelessness, or neglect. Major Science's liability under the warranty is limited to the receipt of reasonable proof by the customer that the defect is embraced within the terms of the warranty. All claims made under this warranty must be presented to Major Science within one year following the date of delivery of the product to the customer.

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